

## The type specimen of *Anoura geoffroyi lasiopyga* (Chiroptera: Phyllostomidae)

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*Abstract.*—In 1868, Wilhelm Peters described *Glossonycteris lasiopyga*, based on a specimen provided by Henri de Saussure and collected in México. The type specimen was presumed to be among those housed in the collections of the Zoologisches Museum of the Humboldt Universität in Berlin, Germany. Our study of one of Saussure's specimens from México, discovered in the collections of the Museum d'Histoire Naturelle, Geneva, Switzerland, demonstrates that it and not one of the Berlin specimens is the holotype.

Henri de Saussure (Saussure 1993) wrote several reports on the animals he collected during his intensive explorations of central México at the middle of the 19th Century. Among Saussure's specimens, which included several mammals and birds he described as new to science (Baud 1977), was a bat he identified as *Anoura ecaudata* Geoffroy (Saussure, 1860). He described the specimen, provided some measurements, and said it occurred in temperate and warm regions of México. The specimen was deposited in the mammal collections of the Museum d'Histoire Naturelle in Genève, Switzerland.

The same specimen was redescribed by Peters (1868) as the basis of a new genus and species he named *Glossonycteris lasiopyga*. A translation of Peters' description follows:

B. Medial upper incisors smaller than outer ones; lower incisors deciduous [p. 364].

a. Zygomatic arch developed.

[. . .]

b. Zygomatic arch absent.

6. *Glossonycteris* nov. gen.

Teeth: 3.3/3.3 1/1 2-2/2-2 1/1 3.3/3.3, molars having distinct W-shaped [p. 365] formation, the cingulum of the two next-to-last upper cheek teeth

more developed. Interfemoral membrane very short, having hair on both sides, calcar very short. Tail?

On the only dried specimen that I was able to examine, through the kind efforts of Mr. H. de Saussure, there was no trace of tail to be seen, and it is probably absent, however this can only be determined with certainty from fresh or alcohol specimens. Both zygomatic arches were lacking on the skull and this appeared natural, but I am not entirely sure of this point since I have had no chance to examine an intact skull.

I. *Glossonycteris lasiopyga* n. sp. (Pl. fig. 2.)

?1844. *Choeronycteris peruana* Tschudi, *Fauna Peruana*. I. P. 71. Pl. 3. Fig. 1. 2.—*Archiv f. Naturgesch.* I. p. 247.

1860. *Anoura ecaudata* Geoffroy, H. de Saussure, *Guèrin Rev. et Mag. Zool.* p. 81.

The specimen examined by Mr. de Saussure is the only one available to me for inspection, while *Choeronycteris peruana* Tschudi, which is perhaps identical with it, cannot be decided upon exactly, since Mr. Coulon of the Neuchatel Museum informs me that this species cannot be found among the Chiroptera given to the museum by Mr. von Tschudi. The description and drawing given in *Fauna Peruana* are not adequate for an exact opinion.

I give here the measurements of the dried specimen from Mexico, sent to me by Mr. de Saussure, as far as these could be determined.

Forearm . . . . . 41  
L. of 1 finger: mtcp. 3.0; 1st ph. 3.3; 2nd ph. 2.0  
. . . . . 8.0  
L. of 2 finger: mtcp. 32.3; 1st ph. 2.0 . . . . 34.5

L. of 3 finger: mtcp. 39.5; 1st ph. 13.7; 2nd ph. 21.0; 3rd ph. 0.011; cartilage 3.7	
L. of 4. fing. mtcp. 37.3; 1st ph. 1.0; 2nd ph. 13.3; cartilage 1.5	
L. of 5. fing. mtcp. 33.0; 1st ph. 8.0; 2nd ph. 11.5; cartilage 1.5	
Tibia	3.0
Foot	11.5
Calcar	3.0

Although there is no clear statement of the kind of specimen preservation, from Peters' (1868) text we know that he had at hand only one specimen. The specimen was a dried skin and nearly complete skull because his description of *Glossonycteris lasiopyga* contains diagnostic characters from both the skin and the skull, and he illustrated the skull as Fig. 2 in the accompanying Plate.

The dental formula Peters (1868) gave for *Glossonycteris* includes three upper and three lower incisors. However, *Anoura* has only two upper incisors on each side and lacks lower incisors. We interpret this discrepancy as indicating that Peters was attempting to provide a more complete dental formula that included the deciduous teeth. We reached this conclusion because Peters stated that the lower incisors were deciduous (see beginning sentence of translation) and, as evident from his Fig. 2, the type of *Glossonycteris lasiopyga* lacked lower incisors. Peters also indicated three upper and lower incisors in the dental formulae for *Lonchoglossa* Peters, 1868 (another junior synonym of *Anoura*) and for *Choeronycteris* Tschudi, 1844, a taxon that also has only two upper incisors on each side and lacks lower incisors.

Clearly, the specimen described by Peters is the holotype. Thomas (1893) treated *Glossonycteris lasiopyga* as a junior synonym of *Anura* [= *Anoura*] *geoffroyi*. Sanborn (1933) was the first to use the current name combination *Anoura geoffroyi lasiopyga* to refer to the subspecies whose range he gave as México, Guatemala, and El Salvador. He gave the type locality as southern México.

Carter and Dolan (1978) discussed two

specimens of *Anoura geoffroyi lasiopyga* that Carter examined at the Zoologisches Museum der Humboldt-Universität zu Berlin (ZMB), Berlin, Germany. These specimens, an adult male (ZMB 3565) and an adult whose sex is unknown (ZMB 3564), had been collected in Cuernavaca, Morelos, México, by Boucard in August 1866. Both specimens are labeled as "typus", and were considered by Carter and Dolan (1978) to be syntypes. However, a review of the museum catalog (handwritten by Peters himself), and of the specimens labels (secondary ones), resulted in no confirmation of any kind of type status (R. Angermann, in litt., 28 November 2000).

These specimens are not syntypes because Peters (1868) mentioned only the specimen he borrowed from Saussure and which had been collected before 1860. Dr. Renate Angermann (in litt., 28 November 2000) was kind enough to examine copies of two letters in the archives of the Zoologisches Museum der Humboldt-Universität from Wilhelm Peters to H. de Saussure. One is dated 28 December 1865, in which Peters requested the loan of six specimens collected in México, including the specimen Saussure (1860) had identified as *Anoura ecaudata*. The other five specimens were those described by Saussure as new: *Vespertilio mexicanus*, *Molossus aztecus*, *Stenoderma tolteca*, *Tylostoma mexicana*, and *Macrotus mexicanus*. The other letter is from March 1866, in which Peters said he was sending back the five specimens mentioned above with his opinion about their taxonomic status, and which he indicated as: *Vespertilio mexicanus* Sauss. = *V. lucifugus* Leconte; *Molossus aztecus* Sauss. = *Nyctinomus brasiliensis* Geoffroy; *Stenoderma tolteca* Sauss. = *Dermanura cinereum* Gervais; *Tylostoma mexicana* Sauss. = *Trachyops* (*Vamp.*) *cirrhosus* Spix; and *Macrotus mexicanus* Sauss. = *Macr. waterhousii* Gray. Apparently the specimen Saussure had identified as *Anoura ecaudata* was not returned at that time.

Recently, a nearly complete skull of *An-*



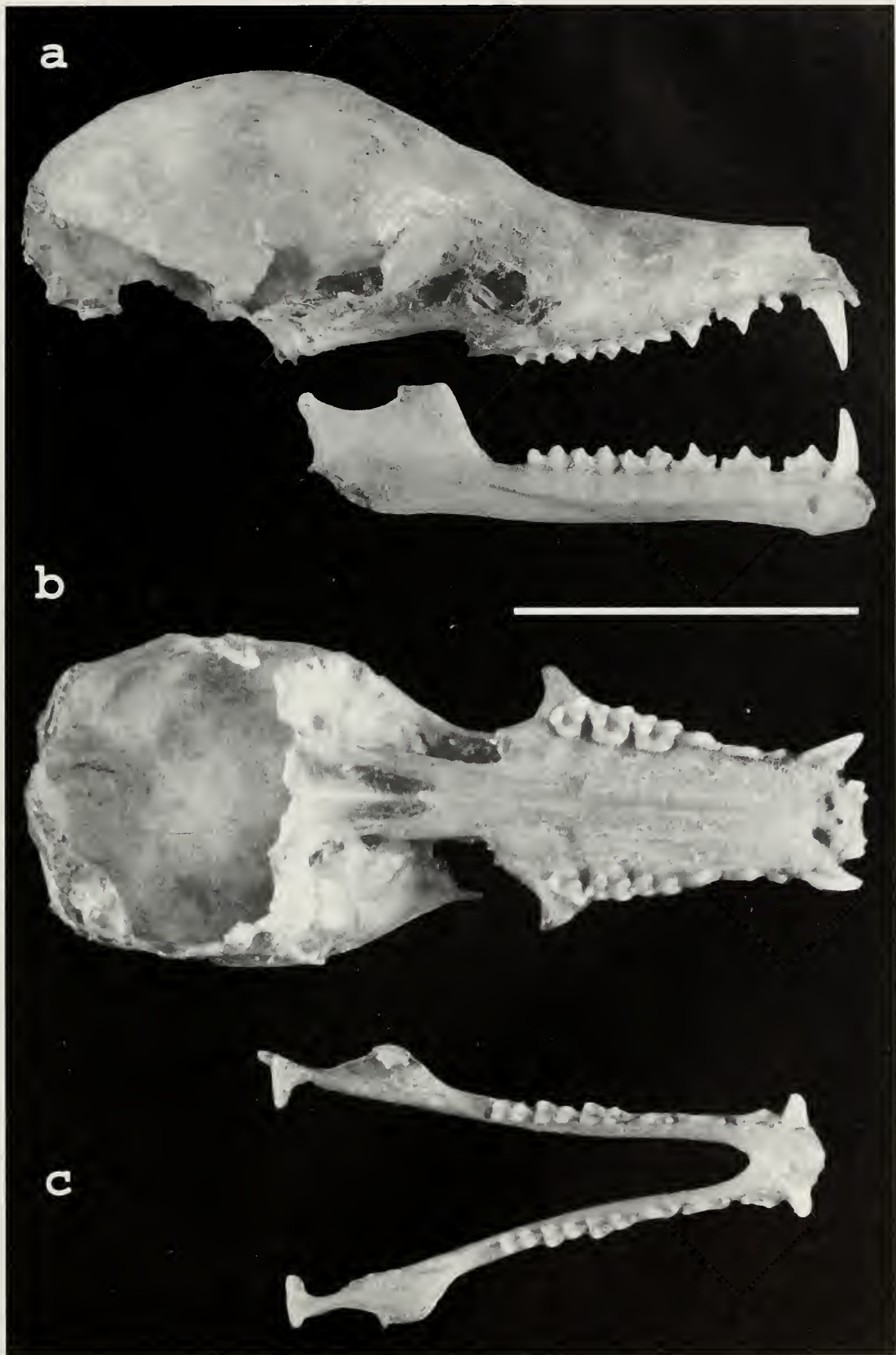


Fig. 1. Photographs of the cranium and mandibles of MHNG 515.88, holotype of *Anoura geoffroyi lasiopyga*: a) lateral view of cranium and mandible, b) ventral view of cranium, and c) dorsal view of mandible: horizontal bar = 10 mm.

*oura geoffroyi* was found in the mammal collections of the Museum d'Histoire Naturelle, Genève, Switzerland (Fig. 2). It is of an adult individual cataloged as MHNG 515.88 and bears a label linking it to Henri de Saussure. The skull is missing both bullae; part of the right temporal bone; and part of the exoccipital region including the basioccipital and basisphenoid. The dental formula is 2/0-1/1-3/3-3/3. The skull label contains the following information: *Obverse*—Museum Geneve/No. 515-88/*Glossonycteris geoffroyi* Gray/Localite Mexique, ach. Sumichrast. *Reverse*—Saussure 1860 VII L.49?/monto M.L [written in pencil and difficult to read].

Cranial measurements (in mm) are as follows: greatest length of skull, 24.8; interorbital breadth, 4.9; braincase breadth, 9.5; palate length, 13.2; maxillary toothrow length, 9.4; width across M2, 3.4; dentary length, 17.3; mandibular toothrow length, 9.7; condylocanine length, 16.6; condylo-molar length, 6.6; coronoid height, 3.8; dentary depth below M1, 1.4; mandibular condyle length, 1.6.

Photographs (Fig. 1) of the skull and mandibles of this specimen essentially duplicate the illustrations that Peters (1868: Fig. 2 and 2b) provided of the holotype of *Glossonycteris lasiopyga*; although the skull appears to have had additional damage since the original description. The similarities, augmented by the label information, support our conclusion that specimen MHNG 515.88 is the holotype of *Glossonycteris lasiopyga* Peters, 1868. Although this specimen was not documented by Baud (1977) in his catalogue of type specimens at the Genève museum, it was recently identified as a potentially significant specimen by Claude Weber (pers. comm., 1999). To date, the skin has not been located.

We have been unable to determine the actual type locality of *Glossonycteris lasiopyga*. Saussure (1860:494) simply said the specimen came from "... les régions chaudes et tempérées. . . ." (warm and temperate regions) of México, and there is no

further information in the museum catalogue. Saussure's field collector was François Sumichrast, and there is no information in Saussure's notes (Saussure 1993) suggesting that either he or Sumichrast collected in or near Cuernavaca, Morelos (the locality Carter and Dolan [1978] provided for the specimens they identified as syntypes in the Berlin museum), during Saussure's expedition to México. Sumichrast collected in Orizaba, Puebla, México City, Tampico, and in a few other small villages in between (Boucard 1884, Sumichrast 1881). Of course, Sumichrast also collected extensively at Santa Efigenia, his finca and famous collecting locality located in Oaxaca near the border with Chiapas. However collecting at this site did not begin until after 1867 following the Mexican civil war (1855 to 1860; Panni 2001a) and the brief reign from 1861 to 1867 of the Austrian Archduke Ferdinand Maximilian as Emperor of México (Panni 2001b). In addition, we know that the holotype of *Glossonycteris lasiopyga* is not the specimen from San Gerónimo (Isthmus of Tehuantepec) later recorded by Sumichrast (1881). The type specimen must have been collected during Saussure's trip to México between 1855 and 1856. It definitely was not collected later than 1860 when Saussure (1860) reported the specimen Peters (1868) later described as a new taxon. Although not helpful to us for locating the type locality of *Glossonycteris lasiopyga*, Alvarez (1963) provided a valuable discussion on the importance of Sumichrast's (1881) report for determining some of the actual type localities for several of the species Saussure described from México. Based on the knowledge that the specimen probably came from somewhere along the Atlantic slope of central México where Saussure did most of his field work, we further restrict the type locality to the State of Veracruz.

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